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ABSTRACT

This paper explores the dynamics of managing collective problem solving and decision making, and the application of tools and strategies to deal with the emergent complexity of systems in which educators work. Schools and educational programs are complex adaptive systems that respond to changes in internal and external environments. Functioning within such a dynamic system requires a tolerance for ambiguity. The literature suggests that a propensity for risk taking is necessary for productive group problem-solving but may not be sufficient. The "amoeba" model provides several metaphors for managing the complexity of work-related problem-solving, in that like the amoeba, good problem-solving is transparent (few hidden agendas, abundant high-quality communication); is deliberate (done with care and attention); has no permanent "internal structures" (the decision-making path depends on the changing nature of the problem and environment); and can bend and reshape itself to adjust to the environment. The image of a pull-down menu suggests the following nonlinear elements of problem solving: generating ideas, identifying decision criteria, prioritizing items, analyzing the list, and splitting independent items apart to be dealt with separately. Includes a list of eight organizational change "insights." (Author/SV)

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SPAWNING IDEAS – MOVING FROM IDEAS TO ACTION: QUALITY TOOLS FOR COLLECTIVE PROBLEM-SOLVING AND CONTINUOUS LEARNING

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Abstract
Many educators, when working collectively to address issues and problems in the daily management of their programs, are capable of generating innovative ideas that hold potential for improving the quality of their teaching, and thus student learning. The challenge, however, is to move beyond the mere spawning of wonderful ideas and to take action on implementing creative ideas into program operations. This workshop will explore the dynamics of managing collective problem-solving and decision making and the application of tools and strategies found helpful in dealing with the emergent complexity of the systems in which we work. Though we focus much of our discussion from a teacher perspective, we see clear connections for trainers and EBTD practitioners, program administrators, and consultants as well. The authors draw on their professional relationship as client and consultant that began several years ago in facilitating organization development at the Battle Creek Outdoor Education Center.

It is estimated that a classroom teacher makes approximately 1000 decisions in a typical day. These decisions range from those which are carefully weighed in a conscious and conscientious fashion to those that occur automatically moment-to-moment in adjusting instruction with learning. Managing the complex dynamics in a classroom with 20+ learners, each with their individual learning styles, needs, and innate abilities, demands the utmost in skill, awareness, and compassion by the teaching professional.

In this article, we will key into language and examples that tend to center around the work of classroom or field-based educators. One reason we choose this frame of reference is due to our respective roles in support of teachers; Richard as a university professor, teacher-educator, and organizational consultant, and Matt as a program administrator and lead instructor. Another reason for our focus here is that we see teachers as the professionals who spend the majority of their time in direct contact with the students, and therefore our roles are to support these individuals who deliver educational services. However, we believe that improving education and organizational performance, and the subsequent management of the human dynamics inherent in these ventures, requires that people at multiple levels both internal and external to an organization must act as change agents and process consultants. Therefore, though our language may tend towards teachers and schools, the focus of this workshop is particularly relevant to administrators, consultants, trainers, and EBTD practitioners who work with groups

The challenges facing an individual teacher in her or his classroom are only one small piece of the task in delivering quality education or programming. Schools and other educational institutions are increasingly being called upon to transform themselves into learning organizations that are student-centered (or customer-oriented) and responsive to the changing needs of our society. Teachers must recognize the moral dimension of their work in providing access to knowledge, facilitating critical enculturation, and promoting stewardship in a democratic society (Goodlad, Soder, & Sirotnik; 1990). This is not a role to be performed in isolation: Teachers must "join forces with others...(realizing) they are part of a larger movement to develop a learning society through their work with parents. It is possible, indeed necessary, for teachers to act locally, while conceptualizing their roles on a higher plane" (Fullan, 1993, pg. 39). Within schools, the adoption of site-based management is just one example where school personnel are partnering with parents, students, and community members in an effort to address issues that threaten not only education but our larger social well-being. Site-based management, a carry-over from "participative management" practices found in business, places greater demands on teachers to be responsible for decisions that formerly were made by building-level of district administrators.

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Working as a member of a community to address the challenges schools face, however, requires much more than sound teaching skills, innovative ideas, and good intentions on the part of those involved. As experiential educators who work with groups in a variety of settings know all too well, even the brightest and most talented individuals often need support in working together in solving problems and making collective decisions. Findings from a study of site-based managed schools in New York, Chicago, and Minnesota suggest that one of the key determinants of success, or failure, is the level of training and skills in group process participants bring to the table (Flor, 1992). Site-based councils that receive little or no support in team-building or training in group dynamics are consistently at a disadvantage in managing the complexity of issues arising from the need for self-management in solving problems. The root causes of this situation are many.

For instance, until recently, few teacher training programs prepared future teachers for the kinds of collaborative work needed to be productive members of teams charged with improving the quality of schooling. And despite the widespread adoption of cooperative learning, an instructional method that relies heavily on training students in social skills needed to work collaboratively, many teachers fail to transfer the principles and practices espoused in their classrooms to their own work with colleagues (Johnson & Johnson, 1994). Indeed, many of us whose work entails the training and facilitation of groups or teams in experiential settings frequently do not apply our skills in our own workplace. One challenge in schools is that teachers' primary responsibility and focus continues to be on their work with students in their classroom or the field, and their work as collaborators and change agents takes second fiddle.

If teachers, and other community members, often fail to bring the requisite knowledge and skills to the collective process of reshaping schools and improving the quality of education in our country, then where are we to find the support and guidance to bring people together for productive work? If individual teachers tend to focus more on the micro-system of their classroom, who possesses the larger perspective on school- or program-wide educational quality?

We believe that it is the school administrator or program manager who occupies a crux position in facilitating the collective problem-solving needed to support continuous improvement in the delivery of educational programs. Trainers and consultants play an important role also, by helping managers gain the skills and confidence needed to lead teams in solving problems and making decisions. In addition, partnerships with business leaders have been helpful in bringing effective meeting management strategies and problem-solving tools into the schools. Presently, however, until schools and school personnel receive much greater support for their work in addressing systemic problems the primary responsibility lies within the staff and administration of individual schools.

In this workshop, we describe some of the factors that play into the process of managing collective problem-solving, and highlight some of the traits and strategies that we've found helpful in our work as change agents in educational settings.

Situation

Imagine it's Friday morning, time for the two-hour weekly staff meeting that you as a program administrator have been planning for the past several days. You and your staff have found it helpful to build an agenda before meeting with issues and topics for discussion that all agree are important to program delivery. This week's agenda includes (1) student evaluation process (unfinished business from last week), (2) needed maintenance on your ropes course, and (3) determination of the theme for next week's 6th/7th graders. Fifteen minutes before the meeting, your program director comes in with a complaint by a parent about an incident that took place last week, and wants to put this on the top of the agenda. You foresee the possibility that this late addition could dominate the whole meeting. What do you do? How are you going to handle this last-minute change and facilitate this meeting?

This is where change in the quality of education takes place: "Where the rubber meets the road." Michael Fullan (1993) notes that here is where we need to see a fundamental shift in how staff relate to each other when facing the (sometimes) daunting task of addressing issues which threaten the quality of education. Neither school boards, the media, nor parent griping (or suggested changes) are going to lead

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this change; it's you and your staff! Here, in face-to-face meetings with our colleagues, are where issues needing attention are identified and kicked around. The key question is, once identified, what's the nature of how we "kick issues and ideas around"?

Living With Ambiguity

Schools and educational programs, like other organizations (or work groups), are complex adaptive systems that respond to changes in both the internal and external environment. Changing expectations imposed from outside the organization (e.g., legislative mandates, parental expectations, market conditions) as well as changes taking place within (e.g., staff turnover, critical incidents, changing technology) guarantee that what worked last week with our students may, *or may not*, work this week. As consultants or trainers, what worked with a particular organization or team may not work with another. To function within such a dynamic system requires a certain level of comfort in dealing with ambiguity; change, and unanticipated results are the norm.

For some time the importance of a risk-taking climate as a necessary ingredient in learning systems has been noted. Indeed, many experiential-adventure programs highlight this as a value-added component in their marketing. This propensity for risk-taking is a key ingredient in effective team problem-solving, and adventure programs have been found to have a positive effect on this trait (Goldman & Priest, 1991).

Our experience is leading us to wonder if in fact it is merely risk-taking behavior that is a necessary ingredient for productive group problem-solving, or if there are other key related variables that must also be present. Could it be that risk-taking is a necessary but not sufficient ingredient? What about the unpredictability and ambiguity that permeate the workplace? How does risk-taking behavior alone help us manage the emergent and often unpredictable dynamics and complexities we face as educators, trainers, consultants, and program administrators?

Problem-Finding & Problem-Solving

If we take it that one essential aspect of work, in any setting, is making decisions about the complex of variables that play into the delivery services, then one might wonder what the tools and strategies are that effective problem-solvers and group facilitators bring forth in managing their, or their team's, work.

As professionals in positions of responsibility for the macro systems of program delivery, managers and administrators must be sensitive to issues that bubble-up from staff while simultaneously attending to larger systems-level issues that potentially impact program quality. As individuals who reside in boundary-spanning roles, for example between staff and top management or between internal and external constituents, the mid-level manager (or consultant) must possess skills and strategies for uncovering and effectively managing diverse problems and perspectives. It is not uncommon for there to be competing agendas and needs vying for the attention and time of the mid-level manager, and learning to deal with these multiple perspectives in a way that satisfies most of the people most of the time is one mark of a good manager.

While effective managers display talent in allowing issues and problems to emerge, it is not enough to simply uncover these but to work through them in ways that satisfy both program needs (and those of students or external customers) and the individual and collective needs of program staff. It is in this highly charged field of play where a manager must be capable of taking (and modeling) risks, be effective at handling conflict and multiple perspectives, and possess the confidence that they will be able to effectively deal with the emergent and ambiguous nature of the work environment.

In our work we have found this confidence in managing the emergent complexity comes from (1) an intuitive sense of how to solve problems effectively, (2) which is in turn supported by a knowledge of what steps typically occur along the way, and perhaps most importantly (3) having a set of tools and strategies useful in facilitating the collective work of staff groups.

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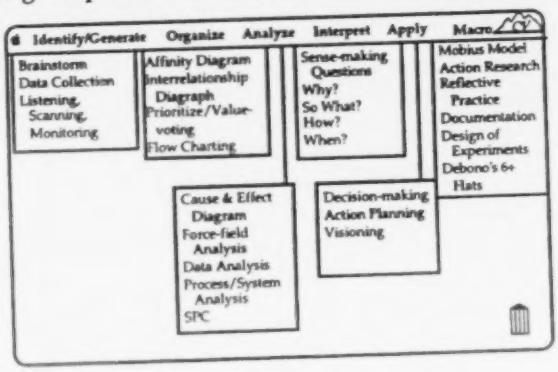
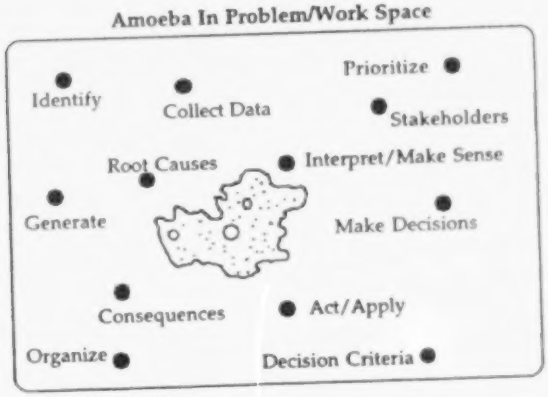
The Amoeba Model: Quality Tools & Strategies for Problem Solving

In our collaborative work as client and consultant we find ourselves engaging in a great deal of processing in our attempts to understand the connections between intervention and improvement. In this manner, we become "critical friends" to each other, where we pose questions, act as sounding boards, and offer suggestions to be tried out and evaluated for their impact.

Recently, we've uncovered several metaphors that seem to capture the essence of how we manage the emergent complexities of work-related problem solving. One of the more organic images we've been playing with is that of an amoeba. From its Greek root, *amoibe*, meaning to change or migrate, comes our core sense of this creature as a metaphor for problem-solving. Webster's defines amoebae as "naked" members of its genus; we see good problem-solving, and those engaged in it, as a "transparent" process



Amoeba In Problem/Work Space



● Point Attractors
(steps, or key factors, in the problem-solving process)

in which hidden agendas are few and the quantity and quality of communication is such that everyone involved can see where they've come from and have a sense of where they're heading. Amoebae are slow and deliberate creatures, rarely rushing forward into something unknown. Effective problem-solving must also be deliberate, that is, done with care and attention. Amoebae are creatures "without permanent organ(s) or supporting structures." Similarly, effective problem solving follows no single set path; where and how one moves is dependent upon the changing nature of the problem and the field in which it is encountered. Sometimes the amoeba sends out feelers to test whether or not it wants to move in a particular direction before it commits to wrapping itself completely around a food source (i.e., feature of its environment) to be digested. At other times it may bend and re-shape itself to adjust to the contours of its environment. The amoeba portrays to us the essential characteristics of an effective problem-solver or leader in its flexibility and approach to life.

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The amoeba, though showing nearly infinite flexibility, is not without guiding principles. A drop of hydrochloric acid would certainly repel an amoebae, whereas a drop of protein-rich liquid would likely attract one. We too, as Humans, bring to our worklife certain values and principles about what has high- or low-value. Thus, there tend to be certain activities, issues, and events towards which we migrate. What emerges from these common tendencies we all share is a characteristic pattern of how we make sense of our world; these constitute our problem-solving behaviors.

Another image comes to mind when we think about the specific activities we engage in with our staff (or clients) that helps to organize the patterns of Human problem-solving. We envision a pull-down menu, similar to what one would find on a Macintosh or Windows-based computer. The main menu headings are the common steps that are necessarily a part of a collective problem-solving process. Under each heading are the tools/strategies we might employ in tackling a given step (see Diagram 2). What must be noted, however, is that there is no set linear progression through these steps. They might be organized that way on a computer screen, but where and how one chooses to piece these together is a choice to be made while uncovering and exploring a given issue. An example may be helpful.
While *generating a list* of program improvements for the next year with staff, you notice that some ideas have severe financial considerations/obstacles, while others are limited more by time. Before you *prioritize these items*, your group must *identify* what *criteria* should be used for individual members to cast their vote. Should it be what can be most quickly accomplished due to energy, or what can most easily be afforded? Which will have the greatest impact on students? Depending on how much value is placed on each consideration (time, money, effort, student impact, etc.) the vote could show a different item as top priority each time! You then *analyze the list* and realize that you could have a list of major, time-consuming projects, and a list of minor jobs that can be done during non-contact time. Noting that the actions to be taken in addressing each item are fairly independent, the group *decides to split* the list and address each independently. This example demonstrates the non-linear and iterative dynamics inherent in group problem-solving and decision making: The amoeba at work!

Conclusion
Improving the quality of education begins with a fundamental change in how we as staff and administrators work together to solve shared problems. Chaos theory suggests that attention should perhaps be given more to the initial conditions around which we come together to collaborate, given that outcomes tend to be unpredictable. Outcomes from a collaborative problem-solving process fall into two categories, however, both of which are important for the quality our students' experience. The first of these is the content of the decisions made and actions taken as they change our professional practice. The second is how we *feel* about our work and those with whom we share our worklives, and how this impacts our future problem-solving and collaborative capabilities. This second outcome of our work is a by-product of the processes we use to uncover and solve issues important to us and our clients.

Perhaps Michael Fullan best captures the nature of the beast we're up against, or wed to. In his book *Change Forces*, he describes findings from 20 years of research into school and organizational change (Table 1). As you read his insights, we believe you'll see many parallels to what we've been attempting to describe, and connections to your own work as educators, managers, trainers, or consultants.

Table 1. Organizational Change Insights (from Fullan, 1993)

I. You Can't Mandate What Matters (The more complex the change the less you can force it) II. Change is a Journey not a Blueprint (Change is non-linear, loaded with uncertainty and excitement and sometimes perverse) III. Problems are Our Friends (Problems are inevitable and you can't learn without them) IV. Vision and Strategic Planning Come Later (Premature visions and planning blind) V. Individualism and Collectivism Must Have Equal Power (There are no one-sided solutions to isolation and groupthink)	VI. Neither Centralization Nor Decentralization Works (Both top-down and bottom-up strategies are necessary) VII. Connection with the Wider Environment is Critical for Success (The best organizations learn externally as well as internally) VIII. Every Person is a Change Agent (Change is too important to leave to the experts, personal mind set and mastery is the ultimate protection)

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Biographies

Dr. Flor has worked in the field of experiential education for over 10 years as an instructor and course director with Outward Bound. His current work as a teacher-educator and organization development (OD) consultant provides him with numerous opportunities to work with individuals and teams in support of creative problem-solving ventures. As a member of AEE, he has presented at several international and regional conferences, served on regional and national committees, and is the current state representative for Wyoming. He is also Senior Consultant, Creative Adventures.

Mr. Troskey has been lead instructor at the Battle Creek Outdoor Education Center for the past five years. As a former client of Dr. Flor's, Matt has been a proactive force in adopting OD practices in his work as a manager, and has been instrumental in developing innovative and practical tools for improving the quality of educational services and staff morale.

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